



The Conservation Strip

CONSERVING NATURAL RESOURCES FOR A BETTER ENVIRONMENT

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NONPOINT SOURCE POLLUTION AND YOU

by: Catherine B. Waterhouse, Conservation Education Specialist

Nonpoint source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diverse sources. It can occur anytime activities disturb the land or water. Urban runoff, septic systems, agriculture, forestry, grazing, recreational boating, construction and habitat degradation are all potential sources of NPS pollution. As rainfall or snowmelt runoff moves over and through the ground, it picks up and carries away natural and man-made pollutants. These pollutants are finally deposited into lakes, rivers, wetlands, coastal waters and even underground sources of drinking water. The four major types of NPS pollution are:

- **SEDIMENTS**—These are soil particles carried by rainwater or snowmelt into water bodies. By volume, sediment is the **greatest** pollutant of all. It is mainly caused by erosion from bare land, construction and development, and poor farming practices.
 - **NUTRIENTS** - Nutrients are substances which, in the right amount, help plants and animals to grow—they have a deleterious effect in amounts that are too large. Nitrogen and phosphorus, which come primarily from fertilizers and animal waste, are the two most worrisome nutrients.
 - **TOXIC SUBSTANCES** - These are chemicals which cause human and wildlife health problems. They include organic chemicals and metals, pesticides, formaldehyde, household chemicals, gasoline, motor oil, battery acid, roadway salt, and many others.
 - **PATHOGENS** - Pathogens are disease-causing microorganisms present in human and animal waste. Most pathogens are bacteria.
- Studies show that NPS pollution is the leading source of water quality deterioration. Pollutants have harmful effects on drinking water supplies, recreation, fisheries and wildlife. Since these pollutants mainly result from a wide variety of human activities on land, everyone plays a part in contributing to NPS pollution, often without realizing it. We CAN work together to reduce and prevent NPS pollution. Here are some ways:
- Dispose of used oil, antifreeze, paints, paint thinners, and other household chemicals properly. Don't dump them on the ground, into storm drains, or down household drains and toilets. One quart of used motor oil can contaminate two million gallons of water.
 - Use natural alternatives to chemical fertilizers or pesticides. If lawn, garden or agricultural chemicals have to be used, select less toxic chemicals and apply them only according to instructions.
 - Inspect septic systems annually.
 - Manage animal waste (pets and/or livestock) to minimize contamination of water.
 - Allow thick vegetation or buffer strips to grow along waterways to slow runoff and soak up pollutants.
 - Instead of a traditional lawn, plant trees, shrubs and groundcovers, especially native species. They absorb approximately fourteen times more rainwater than grass lawns and usually don't require fertilizer. Spread mulch on bare ground to help prevent erosion and runoff.
 - Gutters and downspouts should drain onto vegetated or gravel-filled seepage areas, not directly

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Meet JMSWCD Employee Kerry Wharton

Kerry Wharton is the newest addition to the John Marshall Soil and Water Conservation staff. Hired as an Erosion and Sediment Control Specialist, Kerry administers the Fauquier County Single Family Home Erosion and Sediment Control Inspection Program.



Kerry Wharton
E & S Specialist

Kerry graduated from Radford University with a B.S. in Geography, with an emphasis in Environmental Studies. Following graduation, she worked at the Prince William Soil and Water Conservation District for 2 1/2 years as a Conservation Specialist, helping agricultural landowners apply best management practices.

Kerry currently resides in Rappahannock County. She enjoys reading and outdoor activities.

Teacher's Corner

- Will your class study soils, watersheds, water pollution or similar topics sometime during the 2003-2004 school year? The JMSWCD has a variety of **classroom programs** and **activities** to supplement your conservation education curriculum, including an Enviroscope model, to help meet appropriate SOLs. To find out more, call 347-3120, ext. 3, and ask for Catherine.
- Be sure to mark your calendar for the annual **Environmental Resources Teacher Workshop** on October 23, 2003 at Fauquier High School. This year, the workshop will be "**Ag in the Classroom**", conducted by Wendy Strong, for K-5 teachers. "Ag in the Classroom" will include numerous hands-on activities, grade appropriate lesson plans and other resource materials, all correlated to the VA SOLs. Call the JMSWCD office at 347-3120, ext. 3, to register or for more information.

Interesting Websites for Teachers:

- www.animalsoftherainforest.org *JASON Foundation for Learning*. This is a great site for researching about a particular animal of the rainforest. Categories include: amphibians, birds, fish, insects, mammals and reptiles. Beautiful photographs and a dropdown fact sheet (habitat, diet, enemies and facts) are included, with additional links at the end, for each animal.. If your students will study animals of the rainforest, check out this site.

EVENT CALENDAR

Master Gardener Horticulture Hotline. Call (540) 341-7950, ext. 19, for gardening questions, insect identification, disease identification, weed identification, etc. The hours are 9-3, Monday - Friday.

July 17-20 **53rd Annual Fauquier County Fair.** Fauquier Fair Grounds, 6209 Old Auburn Road, Warrenton, VA. For more information, call Brenda Rich at (540) 788-9549 or Tammy Roop at (540) 347-2000, ext. 14.

July 19 **Homegrown Dinner,** Fauquier Fair Grounds, Warrenton, VA. Call Peter Mitchell at (540) 349-5314 or email at peter.mitchell@fauquiercounty.gov for more details.

July 22 **Dairy Conservation Field Day,** Cedar Springs Farm, Madison County. 8:30-3:00. Topics will include: a tour of the waste management system, herd health, nutrition, nutrient management, financial financial risk management, and others. Lunch provided. There is no cost to attend the Field Day, but please pre-register by calling Keith Dickinson at (540) 341-7950 or the Rockingham County Office at (540) 564-3080 by July 15, 2003.

“FOOD FOR THE FUTURE”

Poster Contest

To promote a better understanding of natural resources topics, each year the John Marshall SWCD sponsors a poster contest in conjunction with *National Soil and Water Stewardship Week*. The theme for this year's poster contest was “Food for the Future” The John Marshall SWCD would like to thank all students who entered the contest and for the teachers' support in making this contest a success.

CONGRATULATIONS to the winners:

First Place—**TESSA SCHLICHTING**, Highland School, Mrs. Laimbeer's class; **Second Place**—**DANIEL HOSTETLER**, Coleman Elementary, Mrs. Goodson's class; **Third Place**—**DYLAN ROBISON**, Coleman Elementary, Mrs. West's class. Students receiving **Honorable Mention** awards are: **JACOB BLACKWELL**, Highland School, Mrs. Laimbeer's class; **COURTNEY EBERSOLE**, Grace Miller Elementary, Mrs. Lasher's class; **EMERY HANBACK**, Highland School, Mrs. Laimbeer's class; **SAVANNAH MORGAN**, Highland School, Mrs. Laimbeer's class; and, **CAITLYN WILSHIRE**, Grace Miller Elementary, Mrs. Constanzo's class.

The John Marshall SWCD would also like to thank **g.whillikers** and **Warrenton Subway** for donating prizes to the “Food for the Future” poster contest.



TESSA SCHLICHTING

Winner of “Food for the Future” Poster Contest

WEST NILE VIRUS

Tips For What You Can Do

With the wet winter and spring Virginia has experienced, people must act now to help prevent West Nile Virus. Here are some things you can do to reduce the risk of becoming infected or reduce mosquito breeding habitat

- Wear clothing that covers the skin and use repellents. If possible, stay indoors at dusk and dawn when mosquitoes are most active.
- Elderly people and those with weak immune systems should take extra precautions to avoid exposure to mosquitoes.
- Mosquitoes can breed in one teaspoon of water! Reduce mosquito breeding habitat by: draining any toy, garden equipment, dishes under potted plants; and other containers that can hold water; remove discarded tires or drill drain holes in the tires; clean rain barrels, bird baths and ornamental ponds weekly (or use a larvicide specifically made for these types of water areas); check uncovered boats and drain; check tarps that might trap water and drain; and, clean clogged rain gutters.

Remember, spraying for mosquitoes once they become adults is a very costly and has proven to have very little effect in controlling mosquito populations. Taking proactive action now to eliminate mosquito breeding habitat around your home/property is the best way to help control this potentially deadly virus.

AG IN THE CLASSROOM WORKSHOP

This year, the annual Environmental Resources Teacher Workshop will provide **Ag In The Classroom** (AITC) training for teachers K-5 on October 23, 2003, at Fauquier High School. AITC is designed to foster an understanding of how agriculture affects the quality of our lives. AITC is aligned with the VA SOLs and provides lessons and fun, hands-on activities appropriate for incorporating into current classroom curriculum. Wendy Strong, AITC facilitator, will provide the training. The workshop is open to educators in public or private schools and in home-schooled settings. For more information, or to register, please contact the JMSWCD at (540) 347-3120, ext. 3, or Eric Dalton at (540) 351-1003.

The True Nature of a Riparian Forest Buffer

by: Tom Turner, Conservation Specialist

Perhaps the best way to explain the true nature of a “**riparian forest buffer**” is to begin by putting each of the three words within this phrase into context. “Riparian” is derived from the Latin word *riparius* or *ripa* which means “bank”. Riparian would then pertain to the area of, on, or related to the banks of a natural water body. The riparian zone is the area immediately adjacent to a particular part of the stream or water body and that is directly interacting with the body of water. .

The forest component is composed of trees, shrubs, and grasses, but would also include all the other parts of a functioning forest, such as the underlying soil and the animals living within it. A riparian forest can extend outward anywhere from twenty-five feet from a headwater stream to several thousand feet from a larger river. For example, any major floodplain would be an intrinsic part of the riparian area as water is moving under and above this area during many periods of the year. If this flood plain is forested, it would be considered a riparian forest.

A buffer is defined in Webster’s as “anything that lessens the shock”. The shock, in this context, would be any potential negative impacts resulting from upland land use decisions. Examples of upland land use decisions that could negatively effect a water body would be the over-application of fertilizers and pesticides, deforestation, over-grazing, and erosion from crop fields and/or construction sites.

From these three components a riparian forest buffer can generally be defined as an area of trees, shrubs, grasses, and other fauna related to the banks of a water body that interact with the water body to lessen the negative impact of upland land use decisions.

Riparian forest buffers provide many benefits to the natural environment as well as to humans that live within it. Here are a few:

- **Litterfall** which consists of leaves, twigs, fruit, seeds, and other organic debris, provide one of the primary food energy components in most small

streams. Single celled algae called diatoms colonize this litterfall and make it more nutritious for aquatic insects. Together these produce the **foundation for the aquatic food chain**.

- The forest canopy provides much needed **shade** that moderates water temperature, helps retain dissolved oxygen levels, and removes dust from wind borne pollution.
- **Nutrients are absorbed** by tree roots and stored within the canopy where they can be released slowly over time through decomposition. Harmful nitrates are converted to nitrogen gas by bacteria within the soil and released into the air before they can reach the stream.
- Buffers **trap runoff** carrying sediments, pesticides and nutrients in the tall vegetation adjacent to streams where they can be incorporated into the soil.
- Wooded stream sides act as **wildlife corridors** by providing cover for predator and prey as they travel from place to place. They often contain a larger plant and animal diversity than many fields and upland woods.
- Forested stream sides act to **stabilize channels** in developed watersheds by stabilizing stream banks and acting to slow and collect debris during floods. Snags within the stream can be likened to platelets in the bloodstream, acting to slow the flow of blood at a wound.

The Commonwealth of Virginia recognizes the benefits of riparian buffers and has established programs to help restore the buffers where they are needed. In Fauquier County, the Chesapeake Bay Cost Share Program provides incentives to landowners to implement best management practices that incorporate the use of riparian buffers to improve water quality. The Conservation Reserve Program (CREP), a program offered by the Federal government, seeks to improve water quality by promoting the voluntary establishment of forested streamside buffers. CREP provides cost share and annual rental payments to cooperators.

For more information on riparian forest buffers and related conservation programs please call the John Marshall SWCD at (540) 347-3120, ext. 3.

SAVE THE RAINWATER

Due to the prolonged drought the East Coast recently experienced, people are now more aware that groundwater recharge is a critical issue. Many streams, springs and wells dried up by the summer of 2002 (or before) due to the lack of rain and the pumping out of groundwater at a faster rate than it was being replenished. Groundwater discharges as baseflow into surface water (springs, streams, wetlands) which is vital for aquatic ecosystems. During periods of little rain, baseflow is the main contributor to surface water. Maintaining a natural rainwater infiltration rate to recharge the groundwater helps insure baseflow, even during dry years. This is where rain gardens can make an important difference.

Rain gardens are an excellent way for both do-it-yourself homeowners and large corporations to reduce, or nearly eliminate, rainwater runoff from their property. The term "rain garden" simply refers to a perennial garden planted in a constructed depressional area that captures rain water, storing it long enough for the water to soak into the ground. Rain gardens perform many of the same functions that forested riparian buffers perform to improve water quality. By providing stormwater storage (this includes the greatly overlooked rainwater which runs off rooftops) and infiltration, rain gardens, large or small, minimize run-off, recharge groundwater, reduce flooding, improve water quality in surface water by

reducing pollutants, and add precious green space to cities. This is especially true in urban areas with large impervious surfaces (parking lots, roads, driveways, etc.) that do not allow rainwater to filter through the ground. Many states are considering legislation that would include onsite infiltration standards for all new developments. This legislation, in many cases, includes rain gardens.

Rain gardens are designed with a dip at the center to collect rain and snowmelt. Strategic placement next to hard surfaces, such as sidewalks and driveways, or to catch water flow from gutter downspouts make rain gardens very effective. Never place a rain garden next to the house (keep it at least ten feet from the foundation) or on top of a septic tank drainfield. Planting with various native species provides an oasis of natural habitat for butterflies, birds and other wildlife. To keep mosquitoes from breeding in your rain garden, the captured water should never pond for more than four days.

For more information, try these web sites:

- Virginia Department of Forestry:
www.dof.state.va.us/rfb/riparian/rain_gardens.htm
- "Rain Gardens, Gardening With Water Quality in Mind": www.mninter.net/~stack/rain
- "Rooftop Runoff Homeowners Manual
<http://avenue.org/tjswcd/>

The Conservation Strip is a quarterly publication of the JOHN MARSHALL SOIL AND WATER CONSERVATION DISTRICT, 98 Alexandria Pike, Suite 31, Warrenton, Virginia, 20186-2849.

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onto paved surfaces. Divert runoff from pavement to vegetated areas of your property, or build a rain garden, so the water can seep slowly into the ground.

- Place litter, including cigarette butts, in trash receptacles. Never allow litter to wash into roadways where it can reach storm drains and/or the nearest water body.
- When boating, portable toilets should only be emptied into approved shore side waste handling facilities.
- Get involved in the planning and zoning process in your community. The decisions that shape the course of development and the future quality of the environment are made there.

For more information on nonpoint source pollution, check out the following websites:

- www.epa.gov/owow/nps/
- www.dcr.state.va.us/sw/nps.htm
- www.beesinc.org/about/watnpsp.htm



On April 18, 2003, JMSWCD employees Jennifer Krick, Mike Blake, and Catherine Waterhouse participated in a white pine seedling planting project with Doug Harpole and 4-H members. Despite the cold and heavy rain, participants planted approximately 300 white pine seedlings, donated by the JMSWCD, along three sides of Habitat for Humanity's Botha Village project near Opal.

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